

## TESTING OUTPUTS

### Test 1: Implementations work for immediate responses

#### 1.a: One proposer (ImmediateResponseTest1.java)

```
#####
TEST 1.A: ONE PROPOSER, IMMEDIATE RESPONSE
#####
M1 is online on port 5001
M2 is online on port 5002
M3 is online on port 5003
M4 is online on port 5004
M5 is online on port 5005
M6 is online on port 5006
M7 is online on port 5007
M8 is online on port 5008
M9 is online on port 5009
M1 proposing new proposalID 1 (Attempt 1)
M1 sent message: PREPARE 1 M1
M1 sent message: PREPARE 1 M1
M1 sent message: PREPARE 1 M1
M1 sent message: PREPARE 1 M1
M1 sent message: PREPARE 1 M1
M1 sent message: PREPARE 1 M1
M1 sent message: PREPARE 1 M1
M1 sent message: PREPARE 1 M1
M8 sending PROMISE for proposal: 1 to proposer: M1
M6 sending PROMISE for proposal: 1 to proposer: M1
M8 sent message: PROMISE 1 M8
M6 sent message: PROMISE 1 M6
M2 sending PROMISE for proposal: 1 to proposer: M1
M3 sending PROMISE for proposal: 1 to proposer: M1
M3 sent message: PROMISE 1 M3
M4 sending PROMISE for proposal: 1 to proposer: M1
M4 sent message: PROMISE 1 M4
M7 sending PROMISE for proposal: 1 to proposer: M1
M7 sent message: PROMISE 1 M7
M9 sending PROMISE for proposal: 1 to proposer: M1
M9 sent message: PROMISE 1 M9
M2 sent message: PROMISE 1 M2
M5 sending PROMISE for proposal: 1 to proposer: M1
M1 recorded PROMISE from M8
M5 sent message: PROMISE 1 M5
M1 recorded PROMISE from M9
M1 recorded PROMISE from M7
M1 recorded PROMISE from M4
M1 recorded PROMISE from M3
M1 received majority PROMISES, broadcasting ACCEPT.
M1 sent message: ACCEPT 1 M1
M1 sent message: ACCEPT 1 M1
M1 sent message: ACCEPT 1 M1
M1 sent message: ACCEPT 1 M1
M2 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1
M3 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1
M2 sent message: ACCEPTED 1 M2
M3 sent message: ACCEPTED 1 M3
M4 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1
M5 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1
M6 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1
M6 sent message: ACCEPTED 1 M6
M1 sent message: ACCEPT 1 M1
```

M4 sent message: ACCEPTED 1 M4  
M1 sent message: ACCEPT 1 M1  
M5 sent message: ACCEPTED 1 M5  
M1 sent message: ACCEPT 1 M1  
M1 sent message: ACCEPT 1 M1  
M8 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M7 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M9 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M8 sent message: ACCEPTED 1 M8  
M9 sent message: ACCEPTED 1 M9  
M7 sent message: ACCEPTED 1 M7  
M1 recorded PROMISE from M2  
M1 received majority PROMISES, broadcasting ACCEPT.  
M1 sent message: ACCEPT 1 M1  
M1 sent message: ACCEPT 1 M1  
M2 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M1 sent message: ACCEPT 1 M1  
M3 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M2 sent message: ACCEPTED 1 M2  
M3 sent message: ACCEPTED 1 M3  
M4 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 1 M4  
M1 sent message: ACCEPT 1 M1  
M5 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M1 sent message: ACCEPT 1 M1  
M5 sent message: ACCEPTED 1 M5  
M6 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M1 sent message: ACCEPT 1 M1  
M6 sent message: ACCEPTED 1 M6  
M7 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M1 sent message: ACCEPT 1 M1  
M7 sent message: ACCEPTED 1 M7  
M1 sent message: ACCEPT 1 M1  
M8 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M8 sent message: ACCEPTED 1 M8  
M9 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M9 sent message: ACCEPTED 1 M9  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M2 acknowledged election winner is: 1  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M5 acknowledged election winner is: 1  
M3 acknowledged election winner is: 1  
M4 acknowledged election winner is: 1  
M1 sent message: FINALISE 1 M1  
M6 acknowledged election winner is: 1  
M1 sent message: FINALISE 1 M1  
  
M7 acknowledged election winner is: 1  
M8 acknowledged election winner is: 1  
M9 acknowledged election winner is: 1  
**Election winner is M1**  
RELEASING PORTS  
#####  
TEST 1.A COMPLETED

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## Test 1.b: Concurrent: Two proposers (ImmediateResponseTest1.java)

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#####
TEST 1.B: TWO CONCURRENT PROPOSERS, IMMEDIATE RESPONSE
#####
M1 is online on port 5001
M2 is online on port 5002
M3 is online on port 5004
M4 is online on port 5005
M5 is online on port 5006
M6 is online on port 5007
M7 is online on port 5008
M8 is online on port 5009
M9 is online on port 5010
M2 proposing new proposalID 4 (Attempt 1)
M1 proposing new proposalID 2 (Attempt 1)
M2 sent message: PREPARE 4 M2
M1 sent message: PREPARE 2 M1
M2 sent message: PREPARE 4 M2
M1 sent message: PREPARE 2 M1
M1 sent message: PREPARE 2 M1
M2 sent message: PREPARE 4 M2
M1 sent message: PREPARE 2 M1
M1 sent message: PREPARE 2 M1
M7 sending PROMISE for proposal: 2 to proposer: M1
M2 sent message: PREPARE 4 M2
M1 sent message: PREPARE 2 M1
M8 sending PROMISE for proposal: 2 to proposer: M1
M3 sending PROMISE for proposal: 4 to proposer: M2
M9 sending PROMISE for proposal: 2 to proposer: M1
M8 sent message: PROMISE 2 M8
M3 sending PROMISE for proposal: 2 to proposer: M1
M3 sent message: PROMISE 2 M3
M2 recorded PROMISE from M3
M6 sending PROMISE for proposal: 2 to proposer: M1
M1 recorded PROMISE from M8
M6 sending PROMISE for proposal: 4 to proposer: M2
M4 sending PROMISE for proposal: 4 to proposer: M2
M1 sent message: PREPARE 2 M1
M2 sent message: PREPARE 4 M2
M7 sending PROMISE for proposal: 4 to proposer: M2
M3 sent message: PROMISE 4 M3
M7 sent message: PROMISE 4 M7
M7 sent message: PROMISE 2 M7
M9 sent message: PROMISE 2 M9
M5 sending PROMISE for proposal: 4 to proposer: M2
M6 sent message: PROMISE 2 M6
M1 recorded PROMISE from M3
M6 sent message: PROMISE 4 M6
M4 sent message: PROMISE 4 M4
M2 recorded PROMISE from M6
M2 sent message: PREPARE 4 M2
M8 sending PROMISE for proposal: 4 to proposer: M2
M9 sending PROMISE for proposal: 4 to proposer: M2
M8 sent message: PROMISE 4 M8
M9 sent message: PROMISE 4 M9
M5 sent message: PROMISE 4 M5
M1 recorded PROMISE from M6
M2 recorded PROMISE from M5
M2 sent message: PREPARE 4 M2
M1 recorded PROMISE from M7
M2 recorded PROMISE from M7
M1 recorded PROMISE from M9
M2 recorded PROMISE from M4
M2 received majority PROMISES, broadcasting ACCEPT.
```

M1 received majority PROMISES, broadcasting ACCEPT.  
M2 sent message: ACCEPT 4 M2  
M2 sent message: ACCEPT 4 M2  
M1 sent message: ACCEPT 2 M1  
M2 sent message: ACCEPT 4 M2  
M2 sent message: ACCEPT 4 M2  
M4 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1  
M3 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M2  
M1 sent message: ACCEPT 2 M1  
M4 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M2  
M4 sent message: ACCEPTED 2 M4  
M3 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 4 M4  
M6 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M2  
M5 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1  
M2 sent message: ACCEPT 4 M2  
M5 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M2  
M7 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M2  
M3 sent message: ACCEPTED 4 M3  
M1 sent message: ACCEPT 2 M1  
M6 sent message: ACCEPTED 4 M6  
M3 sent message: ACCEPTED 2 M3  
M5 sent message: ACCEPTED 2 M5  
M2 sent message: ACCEPT 4 M2  
M5 sent message: ACCEPTED 4 M5  
M2 sent message: ACCEPT 4 M2  
M8 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M2  
M7 sent message: ACCEPTED 4 M7  
M1 sent message: ACCEPT 2 M1  
M6 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1  
M2 sent message: FINALISE 4 M2  
M9 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M2  
M8 sent message: ACCEPTED 4 M8  
M3 acknowledged election winner is: 4  
M1 sent message: ACCEPT 2 M1  
M1 sent message: ACCEPT 2 M1  
M4 acknowledged election winner is: 4  
M2 sent message: FINALISE 4 M2  
M2 sent message: FINALISE 4 M2  
M7 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1  
M6 sent message: ACCEPTED 2 M6  
M6 acknowledged election winner is: 4  
M9 sent message: ACCEPTED 4 M9  
M1 sent message: ACCEPT 2 M1  
M8 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1  
M9 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1  
M8 sent message: ACCEPTED 2 M8  
M9 sent message: ACCEPTED 2 M9  
M2 sent message: FINALISE 4 M2  
M5 acknowledged election winner is: 4  
M2 sent message: FINALISE 4 M2  
M7 sent message: ACCEPTED 2 M7  
M7 acknowledged election winner is: 4  
M2 sent message: FINALISE 4 M2  
M8 acknowledged election winner is: 4  
M2 sent message: FINALISE 4 M2

M9 acknowledged election winner is: 4

**Election winner is M2**

RELEASING PORTS

#####

TEST 1.B COMPLETED

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## Test 1.c: Concurrent: Three proposers (ImmediateResponseTest3.java)

```
#####
TEST 1.C: THREE CONCURRENT PROPOSERS, IMMEDIATE RESPONSE
#####
M1 is online on port 5001
M2 is online on port 5002
M3 is online on port 5003
M4 is online on port 5004
M5 is online on port 5005
M6 is online on port 5006
M7 is online on port 5007
M8 is online on port 5008
M9 is online on port 5009
M3 proposing new proposalID 3 (Attempt 1)
M2 proposing new proposalID 2 (Attempt 1)
M1 proposing new proposalID 1 (Attempt 1)
M3 sent message: PREPARE 3 M3
M1 sent message: PREPARE 1 M1
M3 sent message: PREPARE 3 M3
M1 sent message: PREPARE 1 M1
M3 sent message: PREPARE 3 M3
M3 sent message: PREPARE 3 M3
M1 sent message: PREPARE 1 M1
M1 sent message: PREPARE 1 M1
M1 sent message: PREPARE 1 M1
M1 sent message: PREPARE 1 M1
M2 sent message: PREPARE 2 M2
M3 sent message: PREPARE 3 M3
M3 sent message: PREPARE 3 M3
M2 sent message: PREPARE 2 M2
M8 sending PROMISE for proposal: 3 to proposer: M3
M9 sending PROMISE for proposal: 3 to proposer: M3
M4 sending PROMISE for proposal: 3 to proposer: M3
M9 sending PROMISE for proposal: 1 to proposer: M1
M6 sending PROMISE for proposal: 3 to proposer: M3
M1 recorded PROMISE from M9
M7 sending PROMISE for proposal: 3 to proposer: M3
M2 sent message: PREPARE 2 M2
M8 sent message: PROMISE 3 M8
M5 sending PROMISE for proposal: 1 to proposer: M1
M5 sending PROMISE for proposal: 3 to proposer: M3
M5 sent message: PROMISE 1 M5
M9 sent message: PROMISE 3 M9
M1 recorded PROMISE from M5
M4 sent message: PROMISE 3 M4
M3 recorded PROMISE from M8
M9 sent message: PROMISE 1 M9
M3 recorded PROMISE from M5
M6 sent message: PROMISE 3 M6
M3 recorded PROMISE from M7
M7 sent message: PROMISE 3 M7
M2 sent message: PREPARE 2 M2
M5 sent message: PROMISE 3 M5
M2 sent message: PREPARE 2 M2
M3 recorded PROMISE from M6
M2 sent message: PREPARE 2 M2
M3 recorded PROMISE from M4
M3 received majority PROMISES, broadcasting ACCEPT.
M3 sent message: ACCEPT 3 M3
M3 sent message: ACCEPT 3 M3
M3 sent message: ACCEPT 3 M3
M3 sent message: ACCEPT 3 M3
M3 sent message: ACCEPT 3 M3
```

M7 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M5 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M4 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M3 sent message: ACCEPT 3 M3  
M8 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M9 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M5 sent message: ACCEPTED 3 M5  
M7 sent message: ACCEPTED 3 M7  
M3 recorded PROMISE from M9  
M4 sent message: ACCEPTED 3 M4  
M6 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M8 sent message: ACCEPTED 3 M8  
M6 sent message: ACCEPTED 3 M6  
M9 sent message: ACCEPTED 3 M9  
M3 received majority PROMISES, broadcasting ACCEPT.  
M3 sent message: ACCEPT 3 M3  
M4 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M3 sent message: ACCEPT 3 M3  
M4 sent message: ACCEPTED 3 M4  
M3 sent message: ACCEPT 3 M3  
M5 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M5 sent message: ACCEPTED 3 M5  
M3 sent message: ACCEPT 3 M3  
M7 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M3 sent message: ACCEPT 3 M3  
M6 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M8 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M6 sent message: ACCEPTED 3 M6  
M8 sent message: ACCEPTED 3 M8  
M7 sent message: ACCEPTED 3 M7  
M3 sent message: ACCEPT 3 M3  
M9 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M3  
M9 sent message: ACCEPTED 3 M9  
M3 sent message: FINALISE 3 M3  
M3 sent message: FINALISE 3 M3  
M3 sent message: FINALISE 3 M3  
M4 acknowledged election winner is: 3  
M3 sent message: FINALISE 3 M3  
M7 acknowledged election winner is: 3  
M3 sent message: FINALISE 3 M3  
M6 acknowledged election winner is: 3  
M3 sent message: FINALISE 3 M3  
M5 acknowledged election winner is: 3  
M9 acknowledged election winner is: 3

M8 acknowledged election winner is: 3

**Election winner is M3**

RELEASING PORTS

#####

TEST 1.C COMPLETED

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(NOTE: from this point forward, although some scenarios are highlighted, it is possible that with the delay implemented, other possibilities can happen. We focus on the system being able to handle and correctly reach consensus.

- The cases in this test pdf are the outlined case in README.md)

## Test 2: Members with suggested delay profiles

### Test 2.a: One proposer (MemberDelayTest1.java)

```
#####
TEST 2.A: ONE PROPOSER WITH SUGGESTED DELAY PROFILES
#####
M1 is online on port 5001
M2 is online on port 5002
M3 is online on port 5003
M4 is online on port 5004
M5 is online on port 5005
M6 is online on port 5006
M7 is online on port 5007
M8 is online on port 5008
M9 is online on port 5009
M1 is responding immediately.
M1 is responding immediately.
M1 is responding immediately.
M1 is responding immediately.
M1 is responding immediately.
M1 is responding immediately.
M1 is responding immediately.
M1 is responding immediately.
M2 Very delayed, in the hills
M3 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M5 delaying response due to busy schedule...
M6 delaying response due to busy schedule...
M7 delaying response due to busy schedule...
M8 delaying response due to busy schedule...
M9 delaying response due to busy schedule...
M1 proposing new proposalID 2 (Attempt 1)
M1 sent message: PREPARE 2 M1
M1 sent message: PREPARE 2 M1
M1 sent message: PREPARE 2 M1
M1 sent message: PREPARE 2 M1
M1 sent message: PREPARE 2 M1
M1 sent message: PREPARE 2 M1
M1 sent message: PREPARE 2 M1
M1 sent message: PREPARE 2 M1
M3 sending PROMISE for proposal: 2 to proposer: M1
M3 sent message: PROMISE 2 M3
M1 recorded PROMISE from M3
M9 sending PROMISE for proposal: 2 to proposer: M1
M9 sent message: PROMISE 2 M9
M1 recorded PROMISE from M9
M4 sending PROMISE for proposal: 2 to proposer: M1
M4 sent message: PROMISE 2 M4
M1 recorded PROMISE from M4
M6 sending PROMISE for proposal: 2 to proposer: M1
M6 sent message: PROMISE 2 M6
M1 recorded PROMISE from M6
M5 sending PROMISE for proposal: 2 to proposer: M1
M5 sent message: PROMISE 2 M5
M1 recorded PROMISE from M5
M1 received majority PROMISES, broadcasting ACCEPT.
M1 sent message: ACCEPT 2 M1
M1 sent message: ACCEPT 2 M1
M1 sent message: ACCEPT 2 M1
```



```

M1 sent message: ACCEPT 2 M1
M1 sent message: ACCEPT 2 M1
M1 sent message: ACCEPT 2 M1
M1 sent message: ACCEPT 2 M1
M3 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1
M4 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1
M5 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1
M9 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1
M3 sent message: ACCEPTED 2 M3
M9 sent message: ACCEPTED 2 M9
M1 sent message: ACCEPT 2 M1
M6 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M1
M4 sent message: ACCEPTED 2 M4
M5 sent message: ACCEPTED 2 M5
M6 sent message: ACCEPTED 2 M6
M1 sent message: FINALISE 2 M1
M1 sent message: FINALISE 2 M1
M1 sent message: FINALISE 2 M1
M1 sent message: FINALISE 2 M1
M1 sent message: FINALISE 2 M1
M1 sent message: FINALISE 2 M1
M1 sent message: FINALISE 2 M1
M3 acknowledged election winner is: 2
M4 acknowledged election winner is: 2
M6 acknowledged election winner is: 2
M1 sent message: FINALISE 2 M1
M5 acknowledged election winner is: 2
M9 acknowledged election winner is: 2

```

Election winner is M1

RELEASING PORTS

#####

TEST 2.A COMPLETED

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## Test 2. b: Concurrent: Two proposers (MemberDelayTest2.java)

**CASE 1:** M1 wins due to M2 delays despite m2 having a higher proposal.

#####

TEST 2.B: TWO CONCURRENT PROPOSERS SUGGESTED DELAY PROFILES

#####

```

M1 is online on port 5001
M2 is online on port 5002
M3 is online on port 5003
M4 is online on port 5004
M5 is online on port 5005
M6 is online on port 5006
M7 is online on port 5007
M8 is online on port 5008
M9 is online on port 5009
M2 Very delayed, in the hills
M1 is responding immediately.
M2 Very delayed, in the hills
M1 is responding immediately.
M2 Very delayed, in the hills
M1 is responding immediately.
M1 is responding immediately.
M2 is responding instantly (at café).
M1 is responding immediately.
M2 Very delayed, in the hills
M1 is responding immediately.
M2 is responding instantly (at café).

```



M1 is responding immediately.  
**M2 Very delayed, in the hills**  
 M3 delaying response due to busy schedule...  
 M4 delaying response due to busy schedule...  
 M4 delaying response due to busy schedule...  
 M5 delaying response due to busy schedule...  
 M5 delaying response due to busy schedule...  
 M6 delaying response due to busy schedule...  
 M6 delaying response due to busy schedule...  
 M7 delaying response due to busy schedule...  
 M7 delaying response due to busy schedule...  
 M8 delaying response due to busy schedule...  
 M8 delaying response due to busy schedule...  
 M9 delaying response due to busy schedule...  
 M9 delaying response due to busy schedule...  
**M1 proposing new proposalID 1 (Attempt 1)**  
 M1 sent message: PREPARE 1 M1  
 M1 sent message: PREPARE 1 M1  
 M1 sent message: PREPARE 1 M1  
 M1 sent message: PREPARE 1 M1  
 M1 sent message: PREPARE 1 M1  
 M1 sent message: PREPARE 1 M1  
 M1 sent message: PREPARE 1 M1  
 M3 sending PROMISE for proposal: 1 to proposer: M1  
**M2 proposing new proposalID 2 (Attempt 1)**  
 M2 sent message: PREPARE 2 M2  
 M3 sent message: PROMISE 1 M3  
 M2 sent message: PREPARE 2 M2  
 M1 recorded PROMISE from M3  
 M2 sent message: PREPARE 2 M2  
 M2 sent message: PREPARE 2 M2  
 M2 sent message: PREPARE 2 M2  
 M2 sent message: PREPARE 2 M2  
 M2 sent message: PREPARE 2 M2  
 M5 sending PROMISE for proposal: 1 to proposer: M1  
 M5 sent message: PROMISE 1 M5  
 M1 recorded PROMISE from M5  
 M9 sending PROMISE for proposal: 2 to proposer: M2  
 M9 sent message: PROMISE 2 M9  
 M4 sending PROMISE for proposal: 1 to proposer: M1  
 M4 sent message: PROMISE 1 M4  
 M1 recorded PROMISE from M4  
 M7 sending PROMISE for proposal: 1 to proposer: M1  
 M7 sent message: PROMISE 1 M7  
 M1 recorded PROMISE from M7  
 M8 sending PROMISE for proposal: 1 to proposer: M1  
 M8 sent message: PROMISE 1 M8  
 M1 recorded PROMISE from M8  
 M1 received majority PROMISES, broadcasting ACCEPT.  
 M1 sent message: ACCEPT 1 M1  
 M1 sent message: ACCEPT 1 M1  
 M1 sent message: ACCEPT 1 M1  
 M1 sent message: ACCEPT 1 M1  
 M1 sent message: ACCEPT 1 M1  
 M1 sent message: ACCEPT 1 M1  
 M4 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
 M5 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
 M3 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
 M5 sent message: ACCEPTED 1 M5  
 M3 sent message: ACCEPTED 1 M3  
 M1 sent message: ACCEPT 1 M1  
 M4 sent message: ACCEPTED 1 M4  
 M8 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
 M7 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
 M8 sent message: ACCEPTED 1 M8

M7 sent message: ACCEPTED 1 M7  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M3 acknowledged election winner is: 1  
M4 acknowledged election winner is: 1  
M7 acknowledged election winner is: 1  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M5 acknowledged election winner is: 1  
M8 acknowledged election winner is: 1

**Election winner is M1**

RELEASING PORTS

#####

TEST 2.B COMPLETED

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**CASE 2: M2 is at café, M2 wins**

#####

TEST 2.B: TWO CONCURRENT PROPOSERS SUGGESTED DELAY PROFILES

#####

M1 is online on port 5001  
M2 is online on port 5002  
M3 is online on port 5003  
M4 is online on port 5004  
M5 is online on port 5005  
M6 is online on port 5006  
M7 is online on port 5007  
M8 is online on port 5008  
M9 is online on port 5009  
M2 is responding instantly (at café).  
M1 is responding immediately.  
M2 is responding instantly (at café).  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M1 is responding immediately.  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M1 is responding immediately.  
M2 Very delayed, in the hills  
**M2 is responding instantly (at café).**  
M3 is not responding. Maybe camping :))  
M3 delaying response due to busy schedule...  
M4 delaying response due to busy schedule...  
M4 delaying response due to busy schedule...  
M5 delaying response due to busy schedule...  
M5 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
**M1 proposing new proposalID 1 (Attempt 1)**

M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
**M2 proposing new proposalID 2 (Attempt 1)**  
M2 sent message: PREPARE 2 M2  
M3 sending PROMISE for proposal: 1 to proposer: M1  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M3 sent message: PROMISE 1 M3  
M2 sent message: PREPARE 2 M2  
M1 recorded PROMISE from M3  
M7 sending PROMISE for proposal: 1 to proposer: M1  
M7 sent message: PROMISE 1 M7  
M1 recorded PROMISE from M7  
M4 sending PROMISE for proposal: 2 to proposer: M2  
M4 sent message: PROMISE 2 M4  
M2 recorded PROMISE from M4  
M7 sending PROMISE for proposal: 2 to proposer: M2  
M7 sent message: PROMISE 2 M7  
M9 sending PROMISE for proposal: 2 to proposer: M2  
M9 sent message: PROMISE 2 M9  
M8 sending PROMISE for proposal: 2 to proposer: M2  
M8 sent message: PROMISE 2 M8  
M6 sending PROMISE for proposal: 2 to proposer: M2  
M6 sent message: PROMISE 2 M6  
M5 sending PROMISE for proposal: 2 to proposer: M2  
M5 sent message: PROMISE 2 M5  
M3 sending PROMISE for proposal: 2 to proposer: M2  
M3 sent message: PROMISE 2 M3  
M2 recorded PROMISE from M3  
M2 recorded PROMISE from M7  
M2 recorded PROMISE from M8  
M2 recorded PROMISE from M9  
M2 received majority PROMISES, broadcasting ACCEPT.  
M2 sent message: ACCEPT 2 M2  
M2 sent message: ACCEPT 2 M2  
M2 sent message: ACCEPT 2 M2  
M2 sent message: ACCEPT 2 M2  
M2 sent message: ACCEPT 2 M2  
M3 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M2  
M4 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M2  
M5 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M2  
M3 sent message: ACCEPTED 2 M3  
M4 sent message: ACCEPTED 2 M4  
M7 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M2  
M7 sent message: ACCEPTED 2 M7  
M8 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M2  
M8 sent message: ACCEPTED 2 M8  
M2 sent message: ACCEPT 2 M2  
M5 sent message: ACCEPTED 2 M5  
M2 sent message: ACCEPT 2 M2  
M6 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M2  
M9 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M2  
M9 sent message: ACCEPTED 2 M9  
M6 sent message: ACCEPTED 2 M6  
M2 sent message: FINALISE 2 M2  
M2 sent message: FINALISE 2 M2  
M2 sent message: FINALISE 2 M2

```

M2 sent message: FINALISE 2 M2
M2 sent message: FINALISE 2 M2
M2 sent message: FINALISE 2 M2
M2 sent message: FINALISE 2 M2

M7 acknowledged election winner is: 2
M9 acknowledged election winner is: 2
M3 acknowledged election winner is: 2
M4 acknowledged election winner is: 2
M5 acknowledged election winner is: 2
M6 acknowledged election winner is: 2
M8 acknowledged election winner is: 2
Election winner is M2
RELEASING PORTS
#####
TEST 2.B COMPLETED

```

---

Test 2. c: Concurrent: Three proposers (MemberDelayTest3.java)

Scenario 1: M2 at café responding instantly (other scenarios possible, you can test this out)

```

#####
TEST 2.C: THREE CONCURRENT PROPOSERS SUGGESTED DELAY PROFILES
#####
M1 is online on port 5001
M2 is online on port 5002
M3 is online on port 5003
M4 is online on port 5004
M5 is online on port 5005
M6 is online on port 5006
M7 is online on port 5007
M8 is online on port 5008
M9 is online on port 5009
M3 is not responding. Maybe camping :))
M1 is responding immediately.
M3 is not responding. Maybe camping :))
M1 is responding immediately.
M2 Very delayed, in the hills
M2 is responding instantly (at café).
M2 Very delayed, in the hills
M1 is responding immediately.
M1 is responding immediately.
M2 Very delayed, in the hills
M3 is not responding. Maybe camping :))
M1 is responding immediately.
M2 Very delayed, in the hills
M3 is not responding. Maybe camping :))
M1 is responding immediately.
M2 is responding instantly (at café).
M3 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M5 delaying response due to busy schedule...
M5 delaying response due to busy schedule...
M5 delaying response due to busy schedule...
M6 delaying response due to busy schedule...
M6 delaying response due to busy schedule...
M6 delaying response due to busy schedule...
M7 delaying response due to busy schedule...
M7 delaying response due to busy schedule...
M7 delaying response due to busy schedule...

```

M8 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
**M1 proposing new proposalID 1 (Attempt 1)**  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
**M2 proposing new proposalID 3 (Attempt 1)**  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
**M3 proposing new proposalID 2 (Attempt 1)**  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M6 sending PROMISE for proposal: 3 to proposer: M2  
M6 sent message: PROMISE 3 M6  
M2 recorded PROMISE from M6  
M4 sending PROMISE for proposal: 3 to proposer: M2  
M4 sent message: PROMISE 3 M4  
M9 sending PROMISE for proposal: 1 to proposer: M1  
M9 sent message: PROMISE 1 M9  
M1 recorded PROMISE from M9  
M8 sending PROMISE for proposal: 1 to proposer: M1  
M8 sent message: PROMISE 1 M8  
M1 recorded PROMISE from M8  
M5 sending PROMISE for proposal: 3 to proposer: M2  
M5 sent message: PROMISE 3 M5  
M7 sending PROMISE for proposal: 2 to proposer: M3  
M7 sent message: PROMISE 2 M7  
M3 recorded PROMISE from M7  
M9 sending PROMISE for proposal: 3 to proposer: M2  
M9 sent message: PROMISE 3 M9  
M2 recorded PROMISE from M9  
M7 sending PROMISE for proposal: 3 to proposer: M2  
M7 sent message: PROMISE 3 M7  
M8 sending PROMISE for proposal: 3 to proposer: M2  
M8 sent message: PROMISE 3 M8  
M2 recorded PROMISE from M8  
M2 recorded PROMISE from M4  
M2 recorded PROMISE from M7  
M2 received majority PROMISES, broadcasting ACCEPT.  
M2 sent message: ACCEPT 3 M2  
M2 sent message: ACCEPT 3 M2  
M2 sent message: ACCEPT 3 M2  
M2 sent message: ACCEPT 3 M2  
M2 sent message: ACCEPT 3 M2  
M2 sent message: ACCEPT 3 M2  
M4 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M2  
M5 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M2  
M5 sent message: ACCEPTED 3 M5  
M7 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M2  
M8 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M2

M8 sent message: ACCEPTED 3 M8  
M4 sent message: ACCEPTED 3 M4  
M6 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M2  
M6 sent message: ACCEPTED 3 M6  
M9 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M2  
M9 sent message: ACCEPTED 3 M9  
M7 sent message: ACCEPTED 3 M7  
M2 sent message: FINALISE 3 M2  
M2 sent message: FINALISE 3 M2  
M2 sent message: FINALISE 3 M2  
M2 sent message: FINALISE 3 M2  
M4 acknowledged election winner is: 3  
M2 sent message: FINALISE 3 M2  
M2 sent message: FINALISE 3 M2  
M7 acknowledged election winner is: 3  
M8 acknowledged election winner is: 3  
M9 acknowledged election winner is: 3  
M5 acknowledged election winner is: 3  
M6 acknowledged election winner is: 3

**Election winner is M2**

RELEASING PORTS

#####

TEST 2.C COMPLETED

#####

## **Scenario 2: M3 not camping and M2 in the hills. M3 wins**

#####

TEST 2.C: THREE CONCURRENT PROPOSERS SUGGESTED DELAY PROFILES

#####

M1 is online on port 5001  
M2 is online on port 5002  
M3 is online on port 5003  
M4 is online on port 5004  
M5 is online on port 5005  
M6 is online on port 5006  
M7 is online on port 5007  
M8 is online on port 5008  
M9 is online on port 5009  
M1 is responding immediately.  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M3 delayed connection...  
M2 Very delayed, in the hills  
M2 Very delayed, in the hills  
M3 is not responding. Maybe camping :))  
M1 is responding immediately.  
M3 delayed connection...  
M1 is responding immediately.  
M2 is responding instantly (at café).  
M3 is not responding. Maybe camping :))  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M1 is responding immediately.  
M3 is not responding. Maybe camping :))  
**M2 Very delayed, in the hills**  
**M3 delayed connection...**  
M4 is delayed due to busy schedule...  
M4 is delayed due to busy schedule...  
M4 is delayed due to busy schedule...  
M5 is delayed due to busy schedule...  
M5 is delayed due to busy schedule...  
M5 is delayed due to busy schedule...  
M6 is delayed due to busy schedule...

M6 is delayed due to busy schedule...  
M6 is delayed due to busy schedule...  
M7 is delayed due to busy schedule...  
M7 is delayed due to busy schedule...  
M7 is delayed due to busy schedule...  
M8 is delayed due to busy schedule...  
M8 is delayed due to busy schedule...  
M8 is delayed due to busy schedule...  
M9 is delayed due to busy schedule...  
M9 is delayed due to busy schedule...  
M9 is delayed due to busy schedule...  
**M1 proposing new proposalID 1 (Attempt 1)**  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
**M2 proposing new proposalID 3 (Attempt 1)**  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
**M3 proposing new proposalID 2 (Attempt 1)**  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M4 sending PROMISE for proposal: 2 to proposer: M3  
M4 sent message: PROMISE 2 M4  
M3 recorded PROMISE from M4  
M7 sending PROMISE for proposal: 2 to proposer: M3  
M7 sent message: PROMISE 2 M7  
M3 recorded PROMISE from M7  
M4 sending PROMISE for proposal: 3 to proposer: M2  
M4 sent message: PROMISE 3 M4  
M9 sending PROMISE for proposal: 2 to proposer: M3  
M9 sent message: PROMISE 2 M9  
M5 sending PROMISE for proposal: 2 to proposer: M3  
M5 sent message: PROMISE 2 M5  
M3 recorded PROMISE from M5  
M8 sending PROMISE for proposal: 2 to proposer: M3  
M8 sent message: PROMISE 2 M8  
M3 recorded PROMISE from M8  
M6 sending PROMISE for proposal: 2 to proposer: M3  
M6 sent message: PROMISE 2 M6  
M3 recorded PROMISE from M6  
M3 received majority PROMISES, broadcasting ACCEPT.  
M3 sent message: ACCEPT 2 M3  
M3 sent message: ACCEPT 2 M3  
M3 sent message: ACCEPT 2 M3  
M3 sent message: ACCEPT 2 M3  
M3 sent message: ACCEPT 2 M3  
M4 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M3  
M3 sent message: ACCEPT 2 M3  
M5 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M3  
M6 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M3  
M6 sent message: ACCEPTED 2 M6  
M5 sent message: ACCEPTED 2 M5  
M7 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M3  
M8 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M3



M9 received ACCEPT for proposal: 2, sending ACCEPTED to proposer: M3  
M9 sent message: ACCEPTED 2 M9  
M4 sent message: ACCEPTED 2 M4  
M7 sent message: ACCEPTED 2 M7  
M8 sent message: ACCEPTED 2 M8  
M3 sent message: FINALISE 2 M3  
M3 sent message: FINALISE 2 M3  
M3 sent message: FINALISE 2 M3  
M3 sent message: FINALISE 2 M3  
M3 sent message: FINALISE 2 M3  
M3 sent message: FINALISE 2 M3  
M4 acknowledged election winner is: 2  
M5 acknowledged election winner is: 2  
M6 acknowledged election winner is: 2  
M7 acknowledged election winner is: 2  
M8 acknowledged election winner is: 2  
M9 acknowledged election winner is: 2

**Election winner is M3**

RELEASING PORTS

#####

TEST 2.C COMPLETED

#####

### **Scenario 3: M3 camping and M2 in the hills. M1 wins**

#####

TEST 2.C: THREE CONCURRENT PROPOSERS SUGGESTED DELAY PROFILES

#####

M1 is online on port 5001  
M2 is online on port 5002  
M3 is online on port 5003  
M4 is online on port 5004  
M5 is online on port 5005  
M6 is online on port 5006  
M7 is online on port 5007  
M8 is online on port 5008  
M9 is online on port 5009  
M2 Very delayed, in the hills  
M3 is not responding. Maybe camping :))  
M3 delayed connection...  
M1 is responding immediately.  
M1 is responding immediately.  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M2 is responding instantly (at café).  
M3 delayed connection...  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M3 delayed connection...  
M1 is responding immediately.  
M2 is responding instantly (at café).  
M3 is not responding. Maybe camping :))  
M1 is responding immediately.  
M2 is responding instantly (at café).  
M3 delayed connection...  
**M2 Very delayed, in the hills**  
**M3 is not responding. Maybe camping :))**

M4 is delayed due to busy schedule...  
M4 is delayed due to busy schedule...  
M4 is delayed due to busy schedule...  
M5 is delayed due to busy schedule...  
M5 is delayed due to busy schedule...

M5 is delayed due to busy schedule...  
M6 is delayed due to busy schedule...  
M6 is delayed due to busy schedule...  
M6 is delayed due to busy schedule...  
M7 is delayed due to busy schedule...  
M7 is delayed due to busy schedule...  
M7 is delayed due to busy schedule...  
M8 is delayed due to busy schedule...  
M8 is delayed due to busy schedule...  
M8 is delayed due to busy schedule...  
M9 is delayed due to busy schedule...  
M9 is delayed due to busy schedule...  
M9 is delayed due to busy schedule...  
**M1 proposing new proposalID 1 (Attempt 1)**  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
**M2 proposing new proposalID 3 (Attempt 1)**  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
M2 sent message: PREPARE 3 M2  
**M3 proposing new proposalID 2 (Attempt 1)**  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M3 sent message: PREPARE 2 M3  
M7 sending PROMISE for proposal: 1 to proposer: M1  
M7 sent message: PROMISE 1 M7  
M1 recorded PROMISE from M7  
M9 sending PROMISE for proposal: 1 to proposer: M1  
M9 sent message: PROMISE 1 M9  
M1 recorded PROMISE from M9  
M9 sending PROMISE for proposal: 3 to proposer: M2  
M9 sent message: PROMISE 3 M9  
M2 recorded PROMISE from M9  
M7 sending PROMISE for proposal: 3 to proposer: M2  
M7 sent message: PROMISE 3 M7  
M8 sending PROMISE for proposal: 1 to proposer: M1  
M8 sent message: PROMISE 1 M8  
M1 recorded PROMISE from M8  
M6 sending PROMISE for proposal: 1 to proposer: M1  
M6 sent message: PROMISE 1 M6  
M1 recorded PROMISE from M6  
M8 sending PROMISE for proposal: 2 to proposer: M3  
M8 sent message: PROMISE 2 M8  
M3 recorded PROMISE from M8  
M5 sending PROMISE for proposal: 1 to proposer: M1  
M5 sent message: PROMISE 1 M5  
M1 recorded PROMISE from M5  
M1 received majority PROMISES, broadcasting ACCEPT.  
M1 sent message: ACCEPT 1 M1  
M1 sent message: ACCEPT 1 M1  
M1 sent message: ACCEPT 1 M1  
M1 sent message: ACCEPT 1 M1  
M1 sent message: ACCEPT 1 M1  
M1 sent message: ACCEPT 1 M1  
M5 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1

M6 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M7 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M9 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M8 received ACCEPT for proposal: 1, sending ACCEPTED to proposer: M1  
M7 sent message: ACCEPTED 1 M7  
M5 sent message: ACCEPTED 1 M5  
M6 sent message: ACCEPTED 1 M6  
M9 sent message: ACCEPTED 1 M9  
M8 sent message: ACCEPTED 1 M8  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M1 sent message: FINALISE 1 M1  
M5 acknowledged election winner is: 1  
M1 sent message: FINALISE 1 M1  
M8 acknowledged election winner is: 1  
M7 acknowledged election winner is: 1  
M6 acknowledged election winner is: 1  
M9 acknowledged election winner is: 1

**Election winner is M1**

RELEASING PORTS

#####

TEST 2.C COMPLETED

#####

**Test 3: Failover when a proposer goes offline**

Test 3.a: Two concurrent proposers, one shuts down (ShutdownTest1.java)

#####

TEST 3.A: TWO CONCURRENT PROPOSERS, ONE SHUTS DOWN

#####

M1 is online on port 5001  
M2 is online on port 5002  
M3 is online on port 5003  
M4 is online on port 5004  
M5 is online on port 5005  
M6 is online on port 5006  
M7 is online on port 5007  
M8 is online on port 5008  
M9 is online on port 5009  
M1 is responding immediately.  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M2 is responding instantly (at café).  
M1 is responding immediately.  
M2 is responding instantly (at café).  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M1 is responding immediately.  
M2 is responding instantly (at café).  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M3 delaying response due to busy schedule...  
M3 is not responding. Maybe camping :))  
M4 delaying response due to busy schedule...  
M4 delaying response due to busy schedule...  
M5 delaying response due to busy schedule...  
M5 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...

M7 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
**M2 proposing new proposalID 2 (Attempt 1)**  
**M1 proposing new proposalID 1 (Attempt 1)**  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M3 sending PROMISE for proposal: 2 to proposer: M2  
M3 sent message: PROMISE 2 M3  
**Shutting down M2...**  
M9 sending PROMISE for proposal: 2 to proposer: M2  
M9 sent message: PROMISE 2 M9  
M5 sending PROMISE for proposal: 1 to proposer: M1  
M5 sent message: PROMISE 1 M5  
M1 recorded PROMISE from M5  
M4 sending PROMISE for proposal: 2 to proposer: M2  
M4 sent message: PROMISE 2 M4  
M8 sending PROMISE for proposal: 1 to proposer: M1  
M8 sent message: PROMISE 1 M8  
M1 recorded PROMISE from M8  
M6 sending PROMISE for proposal: 2 to proposer: M2  
M6 sent message: PROMISE 2 M6  
M2 recorded PROMISE from M6  
M7 sending PROMISE for proposal: 1 to proposer: M1  
M7 sent message: PROMISE 1 M7  
M1 recorded PROMISE from M7  
M7 sending PROMISE for proposal: 2 to proposer: M2  
M7 sent message: PROMISE 2 M7  
M8 sending PROMISE for proposal: 2 to proposer: M2  
M8 sent message: PROMISE 2 M8  
M2 recorded PROMISE from M8  
M5 sending PROMISE for proposal: 2 to proposer: M2  
M5 sent message: PROMISE 2 M5  
M2 recorded PROMISE from M5  
M2 recorded PROMISE from M3  
M2 recorded PROMISE from M9  
M2 received majority PROMISES, broadcasting ACCEPT.  
M2 recorded PROMISE from M4  
M2 received majority PROMISES, broadcasting ACCEPT.  
M2 recorded PROMISE from M7  
M2 received majority PROMISES, broadcasting ACCEPT.  
M1 did not receive a majority within timeout, retrying proposal.  
M1 proposing new proposalID 3 (Attempt 2)  
M1 sent message: PREPARE 3 M1  
M1 sent message: PREPARE 3 M1  
M1 sent message: PREPARE 3 M1  
M1 sent message: PREPARE 3 M1  
M1 sent message: PREPARE 3 M1  
M4 sending PROMISE for proposal: 3 to proposer: M1  
M3 sending PROMISE for proposal: 3 to proposer: M1

M4 sent message: PROMISE 3 M4  
M1 sent message: PREPARE 3 M1  
M8 sending PROMISE for proposal: 3 to proposer: M1  
M1 sent message: PREPARE 3 M1  
M5 sending PROMISE for proposal: 3 to proposer: M1  
M5 sent message: PROMISE 3 M5  
M7 sending PROMISE for proposal: 3 to proposer: M1  
M7 sent message: PROMISE 3 M7  
M1 recorded PROMISE from M4  
M6 sending PROMISE for proposal: 3 to proposer: M1  
M6 sent message: PROMISE 3 M6  
M3 sent message: PROMISE 3 M3  
M8 sent message: PROMISE 3 M8  
M1 recorded PROMISE from M3  
M1 received majority PROMISES, broadcasting ACCEPT.  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M9 sending PROMISE for proposal: 3 to proposer: M1  
M9 sent message: PROMISE 3 M9  
M3 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M5 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M1 recorded PROMISE from M6  
M1 received majority PROMISES, broadcasting ACCEPT.  
M5 sent message: ACCEPTED 3 M5  
M4 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 3 M4  
M6 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M6 sent message: ACCEPTED 3 M6  
M7 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M8 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M7 sent message: ACCEPTED 3 M7  
M8 sent message: ACCEPTED 3 M8  
M1 sent message: ACCEPT 3 M1  
M9 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M9 sent message: ACCEPTED 3 M9  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M1 sent message: ACCEPT 3 M1  
M4 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 3 M4  
M3 sent message: ACCEPTED 3 M3  
M3 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M3 sent message: ACCEPTED 3 M3  
M5 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M8 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M8 sent message: ACCEPTED 3 M8  
M5 sent message: ACCEPTED 3 M5  
M7 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M7 sent message: ACCEPTED 3 M7  
M9 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1  
M9 sent message: ACCEPTED 3 M9  
M1 sent message: FINALISE 3 M1  
M1 sent message: FINALISE 3 M1  
M1 sent message: FINALISE 3 M1  
M1 sent message: FINALISE 3 M1  
M1 sent message: FINALISE 3 M1  
M1 sent message: FINALISE 3 M1

```
M6 received ACCEPT for proposal: 3, sending ACCEPTED to proposer: M1
M6 sent message: ACCEPTED 3 M6
M9 acknowledged election winner is: 3
M4 acknowledged election winner is: 3
M1 sent message: FINALISE 3 M1
M3 acknowledged election winner is: 3
M7 acknowledged election winner is: 3
M8 acknowledged election winner is: 3
M5 acknowledged election winner is: 3
M6 acknowledged election winner is: 3
```

**Election winner is M1**

RELEASING PORTS

#####

TEST 3.A COMPLETED

---

### Test 3.b: Three concurrent proposers, one shuts down (ShutdownTest2.java)

**Case 1: M1 retries later.**

#####

TEST 3.B: THREE CONCURRENT PROPOSERS, ONE SHUTS DOWN

#####

```
M1 is online on port 5001
M2 is online on port 5002
M3 is online on port 5003
M4 is online on port 5004
M5 is online on port 5005
M6 is online on port 5006
M7 is online on port 5007
M8 is online on port 5008
M9 is online on port 5009
M1 is responding immediately.
M3 delaying response due to busy schedule...
M2 is responding instantly (at café).
M1 is responding immediately.
M2 Very delayed, in the hills
M3 delaying response due to busy schedule...
M1 is responding immediately.
M2 Very delayed, in the hills
M3 delaying response due to busy schedule...
M1 is responding immediately.
M2 is responding instantly (at café).
M3 delaying response due to busy schedule...
M1 is responding immediately.
M2 Very delayed, in the hills
M3 is not responding. Maybe camping :))
M1 is responding immediately.
M2 Very delayed, in the hills
M3 is not responding. Maybe camping :))
M4 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M5 delaying response due to busy schedule...
M5 delaying response due to busy schedule...
M5 delaying response due to busy schedule...
M6 delaying response due to busy schedule...
M6 delaying response due to busy schedule...
M6 delaying response due to busy schedule...
M7 delaying response due to busy schedule...
M7 delaying response due to busy schedule...
M7 delaying response due to busy schedule...
M8 delaying response due to busy schedule...
M8 delaying response due to busy schedule...
```

M8 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
**M1 proposing new proposalID 1 (Attempt 1)**  
**M2 proposing new proposalID 2 (Attempt 1)**  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
**M3 proposing new proposalID 3 (Attempt 1)**  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
**Shutting down M3...**  
M6 sending PROMISE for proposal: 3 to proposer: M3  
M9 sending PROMISE for proposal: 3 to proposer: M3  
M6 sent message: PROMISE 3 M6  
M9 sent message: PROMISE 3 M9  
M3 recorded PROMISE from M9  
M5 sending PROMISE for proposal: 3 to proposer: M3  
M5 sent message: PROMISE 3 M5  
M7 sending PROMISE for proposal: 1 to proposer: M1  
M7 sent message: PROMISE 1 M7  
M1 recorded PROMISE from M7  
M4 sending PROMISE for proposal: 3 to proposer: M3  
M4 sent message: PROMISE 3 M4  
M3 recorded PROMISE from M5  
M7 sending PROMISE for proposal: 2 to proposer: M2  
M7 sent message: PROMISE 2 M7  
M2 recorded PROMISE from M7  
M8 sending PROMISE for proposal: 1 to proposer: M1  
M8 sent message: PROMISE 1 M8  
M1 recorded PROMISE from M8  
M8 sending PROMISE for proposal: 2 to proposer: M2  
M8 sent message: PROMISE 2 M8  
M3 recorded PROMISE from M6  
M7 sending PROMISE for proposal: 3 to proposer: M3  
M7 sent message: PROMISE 3 M7  
M3 recorded PROMISE from M7  
M8 sending PROMISE for proposal: 3 to proposer: M3  
M8 sent message: PROMISE 3 M8  
M3 recorded PROMISE from M8  
M3 received majority PROMISES, broadcasting ACCEPT.  
M3 recorded PROMISE from M4  
M3 received majority PROMISES, broadcasting ACCEPT.  
M2 recorded PROMISE from M8  
M2 did not receive a majority within timeout, retrying proposal.  
M1 did not receive a majority within timeout, retrying proposal.  
**M2 proposing new proposalID 4 (Attempt 2)**  
**M1 proposing new proposalID 5 (Attempt 2)**  
M2 sent message: PREPARE 4 M2  
M4 sending PROMISE for proposal: 5 to proposer: M1  
M4 sent message: PROMISE 5 M4



M1 sent message: PREPARE 5 M1  
M1 sent message: PREPARE 5 M1  
M1 sent message: PREPARE 5 M1  
M1 sent message: PREPARE 5 M1  
M1 sent message: PREPARE 5 M1  
M1 sent message: PREPARE 5 M1  
M5 sending PROMISE for proposal: 4 to proposer: M2  
M5 sent message: PROMISE 4 M5  
M2 sent message: PREPARE 4 M2  
M2 sent message: PREPARE 4 M2  
M2 sent message: PREPARE 4 M2  
M2 sent message: PREPARE 4 M2  
M2 sent message: PREPARE 4 M2  
M1 recorded PROMISE from M4  
M5 sending PROMISE for proposal: 5 to proposer: M1  
M5 sent message: PROMISE 5 M5  
M6 sending PROMISE for proposal: 5 to proposer: M1  
M6 sent message: PROMISE 5 M6  
M7 sending PROMISE for proposal: 5 to proposer: M1  
M7 sent message: PROMISE 5 M7  
M9 sending PROMISE for proposal: 5 to proposer: M1  
M9 sent message: PROMISE 5 M9  
M8 sending PROMISE for proposal: 5 to proposer: M1  
M8 sent message: PROMISE 5 M8  
M2 recorded PROMISE from M5  
M1 recorded PROMISE from M5  
M1 recorded PROMISE from M9  
M1 received majority PROMISES, broadcasting ACCEPT.  
M1 sent message: ACCEPT 5 M1  
M1 sent message: ACCEPT 5 M1  
M1 sent message: ACCEPT 5 M1  
M1 sent message: ACCEPT 5 M1  
M1 sent message: ACCEPT 5 M1  
M1 sent message: ACCEPT 5 M1  
M6 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M6 sent message: ACCEPTED 5 M6  
M9 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M9 sent message: ACCEPTED 5 M9  
M8 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M8 sent message: ACCEPTED 5 M8  
M4 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 5 M4  
M5 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M5 sent message: ACCEPTED 5 M5  
M7 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M7 sent message: ACCEPTED 5 M7  
M1 recorded PROMISE from M6  
M1 received majority PROMISES, broadcasting ACCEPT.  
M1 sent message: ACCEPT 5 M1  
M1 sent message: ACCEPT 5 M1  
M1 sent message: ACCEPT 5 M1  
M1 sent message: ACCEPT 5 M1  
M1 sent message: ACCEPT 5 M1  
M4 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M5 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M5 sent message: ACCEPTED 5 M5  
M6 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M6 sent message: ACCEPTED 5 M6  
M7 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M7 sent message: ACCEPTED 5 M7  
M8 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M8 sent message: ACCEPTED 5 M8  
M1 sent message: ACCEPT 5 M1  
M9 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M1  
M9 sent message: ACCEPTED 5 M9

M4 sent message: ACCEPTED 5 M4  
M1 sent message: FINALISE 5 M1  
M1 sent message: FINALISE 5 M1  
M1 sent message: FINALISE 5 M1  
M1 sent message: FINALISE 5 M1  
M1 sent message: FINALISE 5 M1  
M1 sent message: FINALISE 5 M1

M5 acknowledged election winner is: 5  
M6 acknowledged election winner is: 5  
M7 acknowledged election winner is: 5  
M8 acknowledged election winner is: 5  
M9 acknowledged election winner is: 5  
M4 acknowledged election winner is: 5

**Election winner is M1**

RELEASING PORTS

#####

TEST 3.B COMPLETED

---

---

Case 2: M2 retries later

#####

TEST 3.B: THREE CONCURRENT PROPOSERS, ONE SHUTS DOWN

#####

M1 is online on port 5001  
M2 is online on port 5002  
M3 is online on port 5003  
M4 is online on port 5004  
M5 is online on port 5005  
M6 is online on port 5006  
M7 is online on port 5007  
M8 is online on port 5008  
M9 is online on port 5009  
M1 is responding immediately.  
M3 is not responding. Maybe camping :))  
M2 Very delayed, in the hills  
M3 delaying response due to busy schedule...  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M1 is responding immediately.  
M3 delaying response due to busy schedule...  
M2 Very delayed, in the hills  
M2 Very delayed, in the hills  
M1 is responding immediately.  
M3 delaying response due to busy schedule...  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M3 delaying response due to busy schedule...  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M3 delaying response due to busy schedule...  
M4 delaying response due to busy schedule...  
M4 delaying response due to busy schedule...  
M4 delaying response due to busy schedule...  
M5 delaying response due to busy schedule...  
M5 delaying response due to busy schedule...  
M5 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...

M8 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
**M1 proposing new proposalID 1 (Attempt 1)**  
**M2 proposing new proposalID 2 (Attempt 1)**  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
**M3 proposing new proposalID 3 (Attempt 1)**  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M9 sending PROMISE for proposal: 3 to proposer: M3  
M9 sent message: PROMISE 3 M9  
**Shutting down M3...**  
M5 sending PROMISE for proposal: 2 to proposer: M2  
M5 sent message: PROMISE 2 M5  
M7 sending PROMISE for proposal: 3 to proposer: M3  
M7 sent message: PROMISE 3 M7  
M6 sending PROMISE for proposal: 1 to proposer: M1  
M6 sent message: PROMISE 1 M6  
M1 recorded PROMISE from M6  
M5 sending PROMISE for proposal: 3 to proposer: M3  
M5 sent message: PROMISE 3 M5  
M3 recorded PROMISE from M5  
M4 sending PROMISE for proposal: 3 to proposer: M3  
M4 sent message: PROMISE 3 M4  
M3 recorded PROMISE from M4  
M6 sending PROMISE for proposal: 2 to proposer: M2  
M6 sent message: PROMISE 2 M6  
M8 sending PROMISE for proposal: 3 to proposer: M3  
M8 sent message: PROMISE 3 M8  
M3 recorded PROMISE from M8  
M3 recorded PROMISE from M9  
M6 sending PROMISE for proposal: 3 to proposer: M3  
M6 sent message: PROMISE 3 M6  
M3 recorded PROMISE from M6  
M3 received majority PROMISES, broadcasting ACCEPT.  
M3 recorded PROMISE from M7  
M3 received majority PROMISES, broadcasting ACCEPT.  
M2 recorded PROMISE from M6  
M2 recorded PROMISE from M5  
M1 did not receive a majority within timeout, retrying proposal.  
M2 did not receive a majority within timeout, retrying proposal.  
**M1 proposing new proposalID 4 (Attempt 2)**  
**M2 proposing new proposalID 5 (Attempt 2)**  
M2 sent message: PREPARE 5 M2  
M2 sent message: PREPARE 5 M2  
M2 sent message: PREPARE 5 M2  
M2 sent message: PREPARE 5 M2  
M2 sent message: PREPARE 5 M2

M4 sending PROMISE for proposal: 5 to proposer: M2  
M4 sent message: PROMISE 5 M4  
M5 sending PROMISE for proposal: 5 to proposer: M2  
M5 sent message: PROMISE 5 M5  
M7 sending PROMISE for proposal: 5 to proposer: M2  
M8 sending PROMISE for proposal: 5 to proposer: M2  
M9 sending PROMISE for proposal: 5 to proposer: M2  
M9 sent message: PROMISE 5 M9  
M2 recorded PROMISE from M4  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M2 recorded PROMISE from M7  
M2 recorded PROMISE from M8  
M2 received majority PROMISES, broadcasting ACCEPT.  
M2 sent message: ACCEPT 5 M2  
M2 sent message: ACCEPT 5 M2  
M2 sent message: ACCEPT 5 M2  
M2 sent message: ACCEPT 5 M2  
M2 sent message: ACCEPT 5 M2  
M2 sent message: ACCEPT 5 M2  
M2 sent message: PREPARE 5 M2  
M9 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M2 recorded PROMISE from M9  
M2 received majority PROMISES, broadcasting ACCEPT.  
M2 sent message: ACCEPT 5 M2  
M2 sent message: ACCEPT 5 M2  
M6 sending PROMISE for proposal: 5 to proposer: M2  
M6 sent message: PROMISE 5 M6  
M6 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M6 sent message: ACCEPTED 5 M6  
M6 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M6 sent message: ACCEPTED 5 M6  
M7 sent message: PROMISE 5 M7  
M7 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M7 sent message: ACCEPTED 5 M7  
M8 sent message: PROMISE 5 M8  
M8 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M8 sent message: ACCEPTED 5 M8  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M4 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M5 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M5 sent message: ACCEPTED 5 M5  
M5 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M5 sent message: ACCEPTED 5 M5  
M9 sent message: ACCEPTED 5 M9  
M2 sent message: ACCEPT 5 M2  
M2 sent message: ACCEPT 5 M2  
M2 sent message: ACCEPT 5 M2  
M7 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M7 sent message: ACCEPTED 5 M7  
M8 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M4 sent message: ACCEPTED 5 M4  
M2 sent message: ACCEPT 5 M2  
M4 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M4 sent message: ACCEPTED 5 M4  
M9 received ACCEPT for proposal: 5, sending ACCEPTED to proposer: M2  
M9 sent message: ACCEPTED 5 M9  
M8 sent message: ACCEPTED 5 M8  
M2 sent message: FINALISE 5 M2  
M2 sent message: FINALISE 5 M2  
M2 sent message: FINALISE 5 M2  
M2 sent message: FINALISE 5 M2

M4 acknowledged election winner is: 5  
M5 acknowledged election winner is: 5  
M6 acknowledged election winner is: 5  
M7 acknowledged election winner is: 5  
M2 sent message: FINALISE 5 M2  
M8 acknowledged election winner is: 5  
M2 sent message: FINALISE 5 M2  
M9 acknowledged election winner is: 5

**Election winner is M2**

RELEASING PORTS

#####

TEST 3.B COMPLETED

#####

**Case 3: M2 retries later but M2 connection is slow.**

#####

TEST 3.B: THREE CONCURRENT PROPOSERS, ONE SHUTS DOWN

#####

M1 is online on port 5001  
M2 is online on port 5002  
M3 is online on port 5003  
M4 is online on port 5004  
M5 is online on port 5005  
M6 is online on port 5006  
M7 is online on port 5007  
M8 is online on port 5008  
M9 is online on port 5009  
M1 is responding immediately.  
M3 is not responding. Maybe camping :))  
M1 is responding immediately.  
M3 is not responding. Maybe camping :))  
M2 is responding instantly (at café).  
M1 is responding immediately.  
M2 is responding instantly (at café).  
M2 is responding instantly (at café).  
M1 is responding immediately.  
M3 delayed connection...  
M2 Very delayed, in the hills  
M3 is not responding. Maybe camping :))  
M1 is responding immediately.  
M2 Very delayed, in the hills  
M3 delayed connection...  
**M1 is responding immediately.**  
**M2 Very delayed, in the hills**  
**M3 delayed connection...**  
M4 is delayed due to busy schedule...  
M4 is delayed due to busy schedule...  
M4 is delayed due to busy schedule...  
M5 is delayed due to busy schedule...  
M5 is delayed due to busy schedule...  
M5 is delayed due to busy schedule...  
M6 is delayed due to busy schedule...  
M6 is delayed due to busy schedule...  
M6 is delayed due to busy schedule...  
M7 is delayed due to busy schedule...  
M7 is delayed due to busy schedule...  
M7 is delayed due to busy schedule...  
M8 is delayed due to busy schedule...  
M8 is delayed due to busy schedule...  
M8 is delayed due to busy schedule...  
M9 is delayed due to busy schedule...  
M9 is delayed due to busy schedule...  
M9 is delayed due to busy schedule...

**M1 proposing new proposalID 1 (Attempt 1)**  
**M2 proposing new proposalID 2 (Attempt 1)**  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
**M3 proposing new proposalID 3 (Attempt 1)**  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
**Shutting down M3...**  
M5 sending PROMISE for proposal: 3 to proposer: M3  
M5 sent message: PROMISE 3 M5  
M3 recorded PROMISE from M5  
M6 sending PROMISE for proposal: 3 to proposer: M3  
M6 sent message: PROMISE 3 M6  
M3 recorded PROMISE from M6  
M9 sending PROMISE for proposal: 3 to proposer: M3  
M9 sent message: PROMISE 3 M9  
M3 recorded PROMISE from M9  
M7 sending PROMISE for proposal: 1 to proposer: M1  
M7 sent message: PROMISE 1 M7  
M1 recorded PROMISE from M7  
M8 sending PROMISE for proposal: 1 to proposer: M1  
M8 sent message: PROMISE 1 M8  
M1 recorded PROMISE from M8  
M7 sending PROMISE for proposal: 3 to proposer: M3  
M7 sent message: PROMISE 3 M7  
M3 recorded PROMISE from M7  
M4 sending PROMISE for proposal: 2 to proposer: M2  
M4 sent message: PROMISE 2 M4  
M2 recorded PROMISE from M4  
M4 sending PROMISE for proposal: 3 to proposer: M3  
M4 sent message: PROMISE 3 M4  
M3 recorded PROMISE from M4  
M3 received majority PROMISES, broadcasting ACCEPT.  
M8 sending PROMISE for proposal: 2 to proposer: M2  
M8 sent message: PROMISE 2 M8  
M8 sending PROMISE for proposal: 3 to proposer: M3  
M8 sent message: PROMISE 3 M8  
M3 recorded PROMISE from M8  
M3 received majority PROMISES, broadcasting ACCEPT.  
M2 recorded PROMISE from M8  
M1 did not receive a majority within timeout, retrying proposal.  
**M1 proposing new proposalID 4 (Attempt 2)**  
M2 did not receive a majority within timeout, retrying proposal.  
**M2 proposing new proposalID 5 (Attempt 2)**  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M4 sending PROMISE for proposal: 4 to proposer: M1

M4 sent message: PROMISE 4 M4  
M4 sending PROMISE for proposal: 5 to proposer: M2  
M4 sent message: PROMISE 5 M4  
M2 sent message: PREPARE 5 M2  
M2 sent message: PREPARE 5 M2  
M2 sent message: PREPARE 5 M2  
M2 sent message: PREPARE 5 M2  
M2 sent message: PREPARE 5 M2  
M5 sending PROMISE for proposal: 4 to proposer: M1  
M5 sent message: PROMISE 4 M5  
M6 sending PROMISE for proposal: 4 to proposer: M1  
M6 sent message: PROMISE 4 M6  
M2 sent message: PREPARE 5 M2  
M7 sending PROMISE for proposal: 4 to proposer: M1  
M8 sending PROMISE for proposal: 4 to proposer: M1  
M9 sending PROMISE for proposal: 4 to proposer: M1  
M8 sent message: PROMISE 4 M8  
M9 sent message: PROMISE 4 M9  
M5 sending PROMISE for proposal: 5 to proposer: M2  
M5 sent message: PROMISE 5 M5  
M1 recorded PROMISE from M4  
M1 recorded PROMISE from M9  
M6 sending PROMISE for proposal: 5 to proposer: M2  
M1 recorded PROMISE from M5  
M1 received majority PROMISES, broadcasting ACCEPT.  
M6 sent message: PROMISE 5 M6  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M7 sending PROMISE for proposal: 5 to proposer: M2  
M7 sent message: PROMISE 5 M7  
M5 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M8 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M9 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M5 sent message: ACCEPTED 4 M5  
M8 sending PROMISE for proposal: 5 to proposer: M2  
M8 sent message: PROMISE 5 M8  
M9 sending PROMISE for proposal: 5 to proposer: M2  
M9 sent message: PROMISE 5 M9  
M1 recorded PROMISE from M6  
M1 received majority PROMISES, broadcasting ACCEPT.  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M7 sent message: PROMISE 4 M7  
M2 recorded PROMISE from M5  
M4 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M6 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 4 M4  
M6 sent message: ACCEPTED 4 M6  
M4 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M6 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 4 M4  
M6 sent message: ACCEPTED 4 M6  
M8 sent message: ACCEPTED 4 M8  
M8 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M8 sent message: ACCEPTED 4 M8  
M9 sent message: ACCEPTED 4 M9  
M9 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1



```

M9 sent message: ACCEPTED 4 M9
M5 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1
M7 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1
M5 sent message: ACCEPTED 4 M5
M2 recorded PROMISE from M9
M7 sent message: ACCEPTED 4 M7
M1 sent message: FINALISE 4 M1
M4 acknowledged election winner is: 4
M7 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1
M5 acknowledged election winner is: 4
M1 sent message: FINALISE 4 M1
M7 sent message: ACCEPTED 4 M7
M1 sent message: FINALISE 4 M1
M6 acknowledged election winner is: 4
M1 sent message: FINALISE 4 M1
M7 acknowledged election winner is: 4
M1 sent message: FINALISE 4 M1
M8 acknowledged election winner is: 4
M1 sent message: FINALISE 4 M1
M9 acknowledged election winner is: 4

```

Election winner is M1

RELEASING PORTS

#####

TEST 3.B COMPLETED

#####

### Test 3.c: Three concurrent proposers, two shuts down (ShutdownTest3.java)

#####

TEST 3.C: THREE CONCURRENT PROPOSERS, TWO SHUTS DOWN

#####

```

M1 is online on port 5001
M2 is online on port 5002
M3 is online on port 5003
M4 is online on port 5004
M5 is online on port 5005
M6 is online on port 5006
M7 is online on port 5007
M8 is online on port 5008
M9 is online on port 5009
M1 is responding immediately.
M3 is not responding. Maybe camping :))
M1 is responding immediately.
M2 Very delayed, in the hills
M1 is responding immediately.
M2 is responding instantly (at café).
M3 delaying response due to busy schedule...
M2 Very delayed, in the hills
M3 is not responding. Maybe camping :))
M2 Very delayed, in the hills
M3 delaying response due to busy schedule...
M1 is responding immediately.
M1 is responding immediately.
M2 is responding instantly (at café).
M3 delaying response due to busy schedule...
M1 is responding immediately.
M2 Very delayed, in the hills
M3 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M5 delaying response due to busy schedule...

```

M5 delaying response due to busy schedule...  
M5 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...

**M1 proposing new proposalID 1 (Attempt 1)**

**M2 proposing new proposalID 2 (Attempt 1)**

M2 sent message: PREPARE 2 M2  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M1 sent message: PREPARE 1 M1

**M3 proposing new proposalID 3 (Attempt 1)**

M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3

**Shutting down M2...**

**Shutting down M3...**

M5 sending PROMISE for proposal: 1 to proposer: M1  
M5 sent message: PROMISE 1 M5  
M1 recorded PROMISE from M5  
M8 sending PROMISE for proposal: 2 to proposer: M2  
M8 sent message: PROMISE 2 M8  
M2 recorded PROMISE from M8  
M8 sending PROMISE for proposal: 3 to proposer: M3  
M8 sent message: PROMISE 3 M8  
M6 sending PROMISE for proposal: 2 to proposer: M2  
M6 sent message: PROMISE 2 M6  
M7 sending PROMISE for proposal: 1 to proposer: M1  
M7 sent message: PROMISE 1 M7  
M1 recorded PROMISE from M7  
M4 sending PROMISE for proposal: 2 to proposer: M2  
M4 sent message: PROMISE 2 M4  
M2 recorded PROMISE from M4  
M5 sending PROMISE for proposal: 3 to proposer: M3  
M5 sent message: PROMISE 3 M5  
M3 recorded PROMISE from M5  
M3 recorded PROMISE from M8  
M9 sending PROMISE for proposal: 3 to proposer: M3  
M9 sent message: PROMISE 3 M9  
M4 sending PROMISE for proposal: 3 to proposer: M3  
M4 sent message: PROMISE 3 M4  
M3 recorded PROMISE from M4  
M3 recorded PROMISE from M9  
M7 sending PROMISE for proposal: 3 to proposer: M3  
M7 sent message: PROMISE 3 M7

M3 recorded PROMISE from M7  
M3 received majority PROMISES, broadcasting ACCEPT.  
M6 sending PROMISE for proposal: 3 to proposer: M3  
M6 sent message: PROMISE 3 M6  
M3 recorded PROMISE from M6  
M3 received majority PROMISES, broadcasting ACCEPT.  
M2 recorded PROMISE from M6  
M1 did not receive a majority within timeout, retrying proposal.  
M2 did not receive a majority within timeout, retrying proposal.  
M2 proposing new proposalID 5 (Attempt 2)  
M1 proposing new proposalID 4 (Attempt 2)  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M4 sending PROMISE for proposal: 4 to proposer: M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M6 sending PROMISE for proposal: 4 to proposer: M1  
M6 sent message: PROMISE 4 M6  
M5 sending PROMISE for proposal: 4 to proposer: M1  
M8 sending PROMISE for proposal: 4 to proposer: M1  
M8 sent message: PROMISE 4 M8  
M1 recorded PROMISE from M4  
M9 sending PROMISE for proposal: 4 to proposer: M1  
M1 recorded PROMISE from M6  
M4 sent message: PROMISE 4 M4  
M1 recorded PROMISE from M8  
M1 received majority PROMISES, broadcasting ACCEPT.  
M7 sending PROMISE for proposal: 4 to proposer: M1  
M1 sent message: ACCEPT 4 M1  
M7 sent message: PROMISE 4 M7  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M5 sent message: PROMISE 4 M5  
M4 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M7 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M6 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 4 M4  
M6 sent message: ACCEPTED 4 M6  
M1 recorded PROMISE from M9  
M1 received majority PROMISES, broadcasting ACCEPT.  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M9 sent message: PROMISE 4 M9  
M4 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M9 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 4 M4  
M9 sent message: ACCEPTED 4 M9  
M5 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M5 sent message: ACCEPTED 4 M5  
M5 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M5 sent message: ACCEPTED 4 M5  
M7 sent message: ACCEPTED 4 M7  
M8 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M8 sent message: ACCEPTED 4 M8  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M6 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M6 sent message: ACCEPTED 4 M6

```

M7 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1
M1 sent message: FINALISE 4 M1
M7 sent message: ACCEPTED 4 M7
M9 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1
M9 sent message: ACCEPTED 4 M9
M8 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1
M8 sent message: ACCEPTED 4 M8
M4 acknowledged election winner is: 4
M1 sent message: FINALISE 4 M1
M1 sent message: FINALISE 4 M1
M1 sent message: FINALISE 4 M1
M1 sent message: FINALISE 4 M1
M5 acknowledged election winner is: 4
M7 acknowledged election winner is: 4
M8 acknowledged election winner is: 4
M9 acknowledged election winner is: 4
M6 acknowledged election winner is: 4
M1 sent message: FINALISE 4 M1

```

**Election winner is M1**

RELEASING PORTS

#####

TEST 3.C COMPLETED

#####

### Test 3.d: Three concurrent proposers, varying shutdown (ShutdownTest4.java)

#####

TEST 3.D: THREE CONCURRENT PROPOSERS, VARYING SHUTDOWN

#####

```

M1 is online on port 5001
M2 is online on port 5002
M3 is online on port 5003
M4 is online on port 5004
M5 is online on port 5005
M6 is online on port 5006
M7 is online on port 5007
M8 is online on port 5008
M9 is online on port 5009
M1 is responding immediately.
M1 is responding immediately.
M3 is not responding. Maybe camping :))
M2 Very delayed, in the hills
M3 is not responding. Maybe camping :))
M2 Very delayed, in the hills
M3 is not responding. Maybe camping :))
M2 is responding instantly (at café).
M1 is responding immediately.
M1 is responding immediately.
M2 Very delayed, in the hills
M3 is not responding. Maybe camping :))
M1 is responding immediately.
M2 Very delayed, in the hills
M3 delaying response due to busy schedule...
M1 is responding immediately.
M2 is responding instantly (at café).
M3 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M4 delaying response due to busy schedule...
M5 delaying response due to busy schedule...
M5 delaying response due to busy schedule...
M5 delaying response due to busy schedule...

```

M6 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M6 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M7 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M8 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
M9 delaying response due to busy schedule...  
**M2 proposing new proposalID 2 (Attempt 1)**  
**M1 proposing new proposalID 1 (Attempt 1)**  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
M1 sent message: PREPARE 1 M1  
M2 sent message: PREPARE 2 M2  
**M3 proposing new proposalID 3 (Attempt 1)**  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
M3 sent message: PREPARE 3 M3  
**Shutting down M3...**  
M9 sending PROMISE for proposal: 3 to proposer: M3  
M9 sent message: PROMISE 3 M9  
M3 recorded PROMISE from M9  
M5 sending PROMISE for proposal: 1 to proposer: M1  
M5 sent message: PROMISE 1 M5  
M1 recorded PROMISE from M5  
M4 sending PROMISE for proposal: 1 to proposer: M1  
M4 sent message: PROMISE 1 M4  
M1 recorded PROMISE from M4  
M4 sending PROMISE for proposal: 3 to proposer: M3  
M4 sent message: PROMISE 3 M4  
M3 recorded PROMISE from M4  
M6 sending PROMISE for proposal: 2 to proposer: M2  
M6 sent message: PROMISE 2 M6  
M8 sending PROMISE for proposal: 2 to proposer: M2  
M8 sent message: PROMISE 2 M8  
M6 sending PROMISE for proposal: 3 to proposer: M3  
M6 sent message: PROMISE 3 M6  
M3 recorded PROMISE from M6  
M7 sending PROMISE for proposal: 1 to proposer: M1  
M7 sent message: PROMISE 1 M7  
M1 recorded PROMISE from M7  
M8 sending PROMISE for proposal: 3 to proposer: M3  
M8 sent message: PROMISE 3 M8  
M5 sending PROMISE for proposal: 3 to proposer: M3  
M5 sent message: PROMISE 3 M5  
M3 recorded PROMISE from M5  
M7 sending PROMISE for proposal: 3 to proposer: M3  
M7 sent message: PROMISE 3 M7  
M3 recorded PROMISE from M7  
M3 received majority PROMISES, broadcasting ACCEPT.

M3 recorded PROMISE from M8  
M3 received majority PROMISES, broadcasting ACCEPT.  
**Shutting down M2...**  
M2 recorded PROMISE from M6  
M2 recorded PROMISE from M8  
M1 did not receive a majority within timeout, retrying proposal.  
M2 did not receive a majority within timeout, retrying proposal.  
**M1 proposing new proposalID 4 (Attempt 2)**  
**M2 proposing new proposalID 5 (Attempt 2) \*\*M2 shuts down after proposing\*\***  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M1 sent message: PREPARE 4 M1  
M4 sending PROMISE for proposal: 4 to proposer: M1  
M4 sent message: PROMISE 4 M4  
M6 sending PROMISE for proposal: 4 to proposer: M1  
M6 sent message: PROMISE 4 M6  
M7 sending PROMISE for proposal: 4 to proposer: M1  
M7 sent message: PROMISE 4 M7  
M8 sending PROMISE for proposal: 4 to proposer: M1  
M8 sent message: PROMISE 4 M8  
M5 sending PROMISE for proposal: 4 to proposer: M1  
M5 sent message: PROMISE 4 M5  
M1 recorded PROMISE from M6  
M1 recorded PROMISE from M8  
M1 received majority PROMISES, broadcasting ACCEPT.  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M9 sending PROMISE for proposal: 4 to proposer: M1  
M9 sent message: PROMISE 4 M9  
M4 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M6 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M7 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 4 M4  
M6 sent message: ACCEPTED 4 M6  
M7 sent message: ACCEPTED 4 M7  
M8 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M8 sent message: ACCEPTED 4 M8  
M1 sent message: ACCEPT 4 M1  
M1 recorded PROMISE from M9  
M1 received majority PROMISES, broadcasting ACCEPT.  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M1 sent message: ACCEPT 4 M1  
M5 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M1 sent message: ACCEPT 4 M1  
M5 sent message: ACCEPTED 4 M5  
M5 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M5 sent message: ACCEPTED 4 M5  
M9 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M9 sent message: ACCEPTED 4 M9  
M4 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M4 sent message: ACCEPTED 4 M4  
M6 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M6 sent message: ACCEPTED 4 M6  
M1 sent message: ACCEPT 4 M1  
M7 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M9 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M7 sent message: ACCEPTED 4 M7  
M9 sent message: ACCEPTED 4 M9

M8 received ACCEPT for proposal: 4, sending ACCEPTED to proposer: M1  
M8 sent message: ACCEPTED 4 M8  
M1 sent message: ACCEPT 4 M1  
M1 sent message: FINALISE 4 M1  
M1 sent message: FINALISE 4 M1  
M1 sent message: FINALISE 4 M1  
M1 sent message: FINALISE 4 M1  
M1 sent message: FINALISE 4 M1  
M4 acknowledged election winner is: 4  
M1 sent message: FINALISE 4 M1

M5 acknowledged election winner is: 4  
M6 acknowledged election winner is: 4  
M7 acknowledged election winner is: 4  
M8 acknowledged election winner is: 4  
M9 acknowledged election winner is: 4

**Election winner is M1**

RELEASING PORTS

#####

TEST 3.D COMPLETED

#####